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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:)	Allowed: November 14, 2003
)	
John Marlowe)	Confirmation No.: 9143
)	
U.S. Serial No.: 09/674,041)	Group Art Unit: 1723
)	
Filed: : October 24, 2000)	Examiner: David A. Reifsnyder
For:		
A MAGNETIC FILTRATION SYSTEM		

LETTER TO EXAMINER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This letter is further to the Notice of Allowance dated November 14, 2003, for which the issue fee has not yet been paid.

In a review of the Examiner's Amendment, Applicant has noted that the second line of claim 26 has been inadvertently omitted. It appears that the last line has simply been cut-off in a facsimile transmission. Attached please find a listing of claims as presented in the Examiner's Amendment mailed November 14, 2003, and, a complete listing of claims as submitted to the Examiner via facsimile on November 4, 2003 during an Examiner-initiated telephone interview with counsel.


LETTER TO EXAMINER
U.S. Appln. No. 09/674,041

Applicant respectfully requests a Supplemental Notice of Allowance with a corrected Examiner's Amendment listing claim 26 in its entirety.

Respectfully submitted,

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By:



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Date: December 18, 2003



The claims in the application have been amended and added as follows:

Claim 1 (currently amended): A magnetic filtration system for filtering magnetisable material from a fluid in which said magnetisable material is in suspension comprising:

inlet means;

outlet means,

a plurality of collection units disposed between the inlet means and the outlet means;

each collection unit comprising a magnet and at least two plates or plate arrays disposed

on either side of the magnet so that the plates or plate arrays have opposing polarities,

wherein portions of the plates or plate arrays extend beyond part or all of an edge or edges of said magnet, facing plates of each of said collection units have one or a plurality of apertures and facing ~~plate portions~~ pole pieces between said apertures create magnetic flux fields which define one or more collection regions of magnetic attraction and magnetisable material collection, to facilitate collection of said magnetisable material in the collection regions between exposed facing plate portions,

wherein facing collection regions in each said collection unit are disposed between facing apertures such that said magnetic flux fields generated in the collection regions facilitate collection of said magnetisable material in a volume sandwiched between exposed facing plate portions,

and wherein the respective plates of adjacent collection units having like polarity are disposed adjacent to one another so as to substantially restrict the collection of said magnetisable ~~particles~~ material to the collection regions.

Claim 2 (previously amended): A magnetic filtration system as in claim 1 further comprising a housing made of a non-magnetisable material.

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Claim 3 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising a housing having means for connection to a flow system, the ~~or each said~~ collection units being located in the housing.

Claim 4 (previously amended): A magnetic filtration system as claimed in ~~claims~~ claim 1, wherein each collection unit is further separated from an adjacent collection unit by a spacing member.

Claim 5 (previously amended): A magnetic filtration system as claimed in claim 4, wherein said spacing member is non-magnetic.

Claim 6 (previously amended): A magnetic filtration system as claimed in claim 4, wherein said spacing member is magnetic.

Claim 7 (previously amended): A magnetic filtration system as claimed in claim 1, wherein the apertures in respective collection units, which are in closer proximity to the inlet means, are larger than those of units disposed nearer the outlet means.

Claim 8 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising alignment means for disposing the apertures and ~~plate portions~~ pole pieces, in the facing plates of a collection unit, in substantial axial alignment.

Claim 9 (previously amended): A magnetic filtration system as claimed in claim 8, further comprising further alignment means for disposing the apertures of respective collection units in substantial axial alignment.

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Claim 10 (currently amended): A magnetic filtration system as claimed in claim 9, wherein said alignment means and further alignment means comprise a tab of given dimension on an internal edge of the plate and an axial unit having a groove of corresponding dimension to that of the tab, into which groove said tab can locate to provide a chosen axial and radial alignment of the facing plate portions and apertures of one or more of said a collection unit and/or those of an assembly of collection units.

Claim 11 (previously amended): A magnetic filtration system as claimed in claim 1, further comprising flow directing means for directing fluid flow from the inlet means towards the apertures in said plates.

Claim 12 (currently amended): A magnetic filtration system claimed in claim 1, further comprising slot-like apertures in said apertures and facing plate portions to further enhance the magnetic flux density between the facing plates of the ~~or each~~ collection units.

Claim 13 (currently amended): A magnetic filtration system as claimed in claim 1, wherein the facing pole pieces pairs are curved towards one another to further enhance the magnetic flux fields therebetween.

Claim 14 (currently amended): A magnetic filtration system as claimed in claim 1, wherein the facing plates ~~[[/]]~~ or plate arrays pairs are separated by a distance which best utilises the magnetic flux emergent from the edges of said facing plates ~~[[/]]~~ or plate arrays to attract and retain said magnetisable material in the fluid and which also facilitates a required collection capacity.

Claim 15 (currently amended): A magnetic filtration system as claimed in claim 1, wherein the attractive flux lines between facing plate portions pole pieces are substantially orthogonal to

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repulsive flux lines in the apertures, such that the magnetisable material entering the apertures, is subject to the influence of both attractive and repulsive flux fields.

Claim 16 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising a housing and wherein internal surfaces of the housing are disposed in close proximity to the outer portions of the said facing plates[[/]] or plate arrays pairs in order to substantially constrain fluid flow in the filtration system to regions in which magnetic flux fields generated by said facing plates[[/]] or plate arrays pairs facilitate the attraction and retention of the size range and type or types of [[non-]] the magnetisable particle material input to the filtration system.

Claim 17 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising one or a plurality of distribution plates having further apertures in substantial axial alignment with said plate apertures, with each of the one or plurality of [the or each] distribution plates being disposed on either side of one or more of the collection units to ensure that all fluid is exposed to regions having magnetic flux density similar to, or greater than, a threshold required for particle attraction.

Claim 18 (previously amended): A magnetic filtration system as claimed in claim 2, wherein the housing comprises one or a plurality of sealable sections with interlockable threaded portions that enable said sections to be readily assembled or dismantled.

Claim 19 (previously amended): A magnetic filtration system as claimed in claim 2 wherein the housing includes means for attachment to a fluid system.

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Claim 20 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising isolation means for isolating fluid flow to and from the filtration system to facilitate removal of fluid flow from and insertion into the ~~fluid~~ filtration system.

Claim 21 (currently amended): A magnetic filtration system as claimed in claim 1, further comprising monitoring means, for monitoring the presence and/or amount of said magnetisable material collected, ~~is disposed~~ in the filtration system.

Claim 22 (currently amended): A magnetic filtration system as claimed in claim 21, further comprising system close down means which is actuated upon detection of a pre-determined level of material collected in the filtration system.

Claim 23 (previously amended): A magnetic filtration system as claimed in claim 1 further comprising a filter medium disposed in the housing to remove non-magnetisable particles input to the system.

Claim 24 (currently amended): A magnetic filtration system as claimed in claim 1, wherein at least one of said collection units includes an electromagnet and switch means for activating the electromagnet to collect particles said magnetisable material and for de-activating the electromagnet to facilitate release of said magnetisable material collected.

Claim 25 (previously amended): A magnetic filtration system as claimed in claim 1, further comprising cellulose fiber, metal or other filter material to remove non-magnetisable material input to said system.

Claim 26 (previously amended): A magnetic filtration system as claimed in claim 25, wherein

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Claim 27 (currently amended): A method for removing magnetisable ~~particles~~ material from a fluid in which said magnetisable material is in suspension, comprising:

providing an apparatus as claimed in Claim 1,

passing the fluid through said apertures, and

attracting and retaining said magnetisable ~~particles~~ material in said collection regions.

Claim 28 (previously amended): A method as claimed in claim 27, further comprising detaching the plates from the magnet or magnets and mechanical removal of said magnetisable material from the plates and the magnet or magnets.

Claim 29 (previously amended): A method as claimed in claim 27, further comprising removing said magnetisable material collected, in an undismantled collection unit, with an air line.

Claim 30 (currently amended): A method for removing magnetisable ~~particles~~ material from a fluid in which said magnetisable material is in suspension, comprising:

providing an apparatus as claimed in Claim 1 wherein at least one of said collection units includes an electromagnet and switch means for activating the electromagnet to collect ~~particles~~ said magnetisable material and for de-activating the electromagnet to facilitate release of said magnetisable material collected,

passing the fluid, via a fluid system, through said apertures and attracting and retaining said magnetisable ~~particles~~ material in said collection regions,

activating the electromagnet to retain said magnetisable material in said regions of magnetic attraction,

de-activating the electromagnet to release said magnetisable material from said regions of magnetic attraction, and

disposing of said magnetisable material from said fluid system.

Claim 31 (previously amended): A method as claimed in claim 30, wherein the activating and de-activating the electromagnet includes passing current through coils of the electromagnet.

Claim 32 (previously amended): A method for monitoring the quantity and/or type of magnetisable material collected comprising:

- providing an apparatus as claimed in claim 1,
- providing detection means for detecting the presence of magnetisable material collected between facing portions of the plates or plate arrays, part of which detection means extends in the collection region of said one or more collection units,
- monitoring the type or quantity of said magnetisable material present,
- providing alarm means,
- setting off the alarm if the quantity of said magnetisable material rises beyond a pre-determined rate or amount, and
- providing closing down means for a fluid system supplying fluid to said apparatus, and
- closing down the said fluid system if the quantity of said magnetisable material rises beyond a further pre-determined rate or amount.

33. (new) A magnetic filtration system as claimed in claim 1, wherein said facing apertures in said plates define a region of magnetic repulsion.

34. (new) A magnetic filtration system as claimed in claim 33, wherein said facing plates comprise a plurality of said facing apertures defining a plurality of regions of magnetic repulsion.

35. (new) A method as claimed in claim 27, wherein said facing apertures in said plates define a region of magnetic repulsion.

36. (new) A method as claimed in claim 35, wherein said facing plates define a plurality of regions of magnetic repulsion from which magnetisable material is repelled.